Information on the National Soil Carbon Network Templates

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This document gives detailed information the variables contained in the data submission template.

There are six worksheets in the template: site, profile, layer, fraction, disturbance, and metadata. Sites will typically be comprised of multiple soil profiles, each of which is comprised of individually collected and reported horizons or depth increments (called samples or layers). The layer and fraction sheets contain many of the same variables; data for the non-fractionated whole soils go in the layer sheet and data for their constituent fractions (e.g., density or size) go in the fraction worksheet. Only the layer sheet contains the layer top, bottom and horizon information; giving names to fractions that are similar to but distinct from the layers from which they were derived will assist with data organization.

Some text variables have restricted vocabularies and are denoted by 'has CV' in the Units column. Only the enumerated values can be used. For these variables, the vocabulary is either enumerated below or, for larger vocabularies, a URL to a web site that can be used to search for the acceptable attributes.

The 'Rowtext' column provides the database name used for each variable, and those variables indicated in blue are necessary for template processing. User-facing names are in the 'Name' column. Any other unused columns may be removed from the template for convenience. Similarly, unused rows may be removed from the metadata sheet.

Completed spreadsheets should be sent to the NSCN Network Coordinator.

This is a beta release of the NSCN Database products. Several features of the database, data submissions guidelines and quality checks are still under development. Please send any feedback to nscn-support@george.lbl.gov.

site			
Rowtext	Name	Units	Description
site_name	Site Name		A unique name for a site that corresponds to a georeferenced point. For NRCS data, it is the same as the "Site ID". Examples include: "101","DFTC", "Site 1", "99AK180003"
state	State	has CV	 Controlled vocabulary: US_STATES
county	County		
lat	Latitude	dec. deg	The latitudinal coordinate decimal degrees to five decimal places (WGS84 Latitude/Longitude datum preferred). Examples include: "64.67083"
long	Longitude	dec. deg	The longitudinal coordinate decimal degrees to five decimal places (WGS84 Latitude/Longitude datum preferred). Examples include: "-148.32683"

site			
Rowtext	Name	Units	Description
datum	Latitude/Longitude Datum	has CV	Latitude/Longitude datum against which Latitude and Longitude are reported. If left blank, WGS84 will be assumed. Controlled vocabulary: DATUM
location_acc	Location Accuracy		Estimated accuracy of the location of the site. Site origin has a 95% or greater probability of being within this many meters of the reported location. Examples include: “100”, “2”
elevation	Elevation	m	The elevation at the site as determined by topo map, GPS, altimeter, etc. Contributed value is assumed accurate within several meters regardless of method used.
vegclass_nat	National Vegetation Classification Standard		The type of vegetation at the site, described according to the Federal Geographic Data Committee’s classification scheme (http://www.fgdc.gov/standards/projects/FGDC-standards-projects/vegetation/NVCS_V2_FINAL_2008-02.pdf). Classify the site according to the three uppermost formations (Class, Subclass, Formation, Division). Examples include: “1.C.2”, “3.A.1”, “4.C.1”,
vegclass_local	Local Vegetation Classification Code		The type of vegetation at the site, described according to the classification scheme commonly used at the site. Indicate the scheme in the Local Vegetation Classification Type. Leave blank if unknown or no local classification applies. Examples include: For Alaska, level IV or V is preferred, but when this is not possible, use Level II or III. Examples include “1.C.2”, “3.A.1”, “4.C.1”.
vegclass_local_type	Local Vegetation Classification Type		Indicate the local classification scheme used at this site. Examples include: For Alaska, The Alaska vegetation classification http://www.treesearch.fs.fed.us/pubs/6941
veg_note	Additional Vegetation Data Notes		Provide references or links here if additional site-level vegetation data are available (e.g. species composition, basal area, aboveground biomass). Examples include: “DBH and tree heights available for this site. See Bonanza Creek LTER online database (http://www.lter.uaf.edu/site_search.cfm).”
landscape	Landscape	has CV	The type of Landscape on which the site occurs, according to USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p. 3-11) This information can be arranged in hierarchy above Landform and 2D Position to describe the geographic setting of the site. Examples include: “alluvial plain”, “river valley”, “mountain range”, “shore complex” Controlled vocabulary: LANDSCAPE

site			
Rowtext	Name	Units	Description
landform	Landform	has CV	The type of Landform on which the site is located. See USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 3-12 through 3-16). This information can be nested between Landscape and 2D Position to describe the setting of the site. Examples include: “alluvial fan”, “beach”, “escarpment”, “flood plain”, “hill”, “mountain”, “plain”, “sea cliff”, “terrace”, “tidal flat” Controlled vocabulary: LANDFORM
2d_position	2D Position	has CV	2-dimensional position of the site on the Landform on which it is located. See USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 3-38 through 3-41). This information supplements Landscape and Landform to describe the geographic setting of the site. Examples include: “summit”, “shoulder”, “backslope”, “toeslope”, “base slope”, “riser”, “mountainflank”, “dip” Controlled vocabulary: 2D_POSITION
landform_note	Landform Notes		Additional notes about the Landform (e.g. microtopography) in this site.
parent	Parent Material		The geologic or organic precursors to the soil at the site. Examples include: “loess”, “glacial till”, “dolomite residuum”
ccon_site_proc	Processed Site Organic Carbon Content	g cm-2	Organic carbon content calculation for an individual site as estimated by the contributor based on special procedures for handling missing data (e.g. %C v. bulk density relations). Most ideal are estimates to a specific depth or horizon. Please document the method in the associated Processed Site Organic Carbon Content Error Estimate and Method.
ccon_site_type	Processed Site Organic Carbon Content Type	has CV	Type of organic carbon content calculation for individual site. Controlled vocabulary: CCON_TYPE
ccon_site_pcount	Processed Site Organic Carbon Content Profile Count		Count of profiles used in the processed organic carbon content calculation for an individual site.
ccon_site_sigma	Processed Site Organic Carbon Content Sigma	g cm-2	Organic carbon content calculation for individual site error estimate (standard deviation).
ccon_site_method	Processed Site Organic Carbon Content Method		Published or other reference to algorithm used to compute Processed Site Organic Carbon Content.
aspect_deg	Site Aspect	degree	The numerical observation of aspect at the site. The compass bearing (corrected for declination) that a slope faces, looking downslope. If the site has no slope leave blank. Examples include: A numerical value between 0 and 360, or "no slope"

site			
Rowtext	Name	Units	Description
aspect_cl	Site Aspect Class	has CV	The cardinal direction that the slope faces at a site. Use this field if only if you do not provide the azimuth of the Site Aspect in compass degrees. Controlled vocabulary: DIRECTION
slope	Slope	%	The angle of the ground surface through the site and in the direction that overland water would flow. Make observations facing downslope to avoid errors associated with some brands of clinometers. If the site has no slope leave blank.
stand_age	Maximum Stand Age	years	The maximum stand age at the site in years.
stand_maturity	Stand Maturity	has CV	If the site is forested, how mature was the stand at the time of sampling? The class may be determined by tree cores if available. If stand age is known, then 0-4 years: “young, regenerative”, 4-79 years: “even-aged, aggrading, and 80+ years: “mature even-age” or “mature, uneven-age”. Choose “not applicable” for grassland or agricultural areas. If unknown, leave blank. Controlled vocabulary: STAND_MATURITY
successional_status	Successional Status		Description of the assumed successional status of the plot. This description is of necessity highly subjective.
drainagecl	Drainage Class	has CV	The drainage class of the soil sampled at the site according to the specific terminology employed in the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p. 1-10). Controlled vocabulary: DRAINAGE
depth_water	Depth to Water Table	cm	Measure or estimate the depth from the ground surface to the stabilized contact with free-standing water in an open bore-hole or well at the time of sampling.
thaw_depth_site	Thaw Depth of the Site	cm	The depth at which permafrost will usually thaw each summer for the site. Usually an average of many measurements over the site. This may or may not be from the thaw depth measured from individual profiles and hence may be different from Thaw Depth of the
bedrock_depth	Depth to Bedrock	cm	The observed depth to the top of the bedrock layer.
climate_station	Climate Station		Name of nearest climate station. Examples include: "Van Riper State Park", "Bald Mtn. SNOTEL", "Grayson 3SW", "DTW"
days	Frost Free Days	days	The expected number of days between the last freezing temperature (0 degrees Celsius) in spring (Jan-Jul) and the first freezing
flood_freq	Flooding Frequency	has CV	The annual probability of a flood event expressed as a class. Controlled vocabulary: FLOOD_FREQ

site			
Rowtext	Name	Units	Description
geo_form	Geologic Formation		The basic lithostratigraphic unit used to describe, delimit, and interpret sedimentary, extrusive igneous, metavolvanic, and metasedimentary or sediment bodies (excludes metamorphic and intrusive igneous rocks), based on lithic characteristics and stratigraphic position. A formation is commonly, but not necessarily, tabular and stratified and is of sufficient extent to be mappable at the earth's surface or traceable in the subsurface at convenient map scales. Examples include: "Mount Spokane Gneiss", "Martinsburg Shale", "Jacobsville Sandstone"
map	Mean Annual Precipitation	mm	The arithmetic average of the total annual (liquid) precipitation , preferably taken over the standard "normal" period, 1961-1990.
mat	Mean Annual Temperature	°C	The arithmetic average of the daily maximum and minimum temperatures for a calendar year, preferably taken over the standard "normal" period, 1961
mast	Mean Annual Soil Temperature	°C	The mean annual soil temperature, preferably measured at a depth of 50 cm below the soil surface, or at the upper boundary of a root -limiting layer as
pond_freq	Ponding Frequency	has CV	The number of times ponding occurs over a period of time. Controlled vocabulary: POND_FREQ
runoff	Local Runoff Class	has CV	Runoff potential class for the soil, assigned based on local/state/MLRA criteria. Controlled vocabulary: RUNOFF
site_perm	Site Permeability	has CV	A class rating of the overall ability of air and water to move through the soil profile. The class limits are as defined in the National Soil Survey Handbook. Controlled vocabulary: SITE_PERM
water_table_duration	Wet Soil Moisture Duration	days	The cumulative annual duration that a water table can be expected to exist in the soil.
cflux_note	C Flux Notes		Provide references or links to carbon flux measurements that have been conducted at the site. Examples include: “http://www.fluxdata.org/Data%20Browsing/Documents%20Free/FluxMetSummary.aspx”, “Gough et al. 2007 Legacy of harvest…”
climate_note	Climate Notes		Provide references or links to climate data for the site. Examples include: “http://www.lternet.edu/sites/hbr/”, “Nave et al. 2009 Contribution of atmospheric deposition…”
eco_note	Ecoregion Note		Special information about the site that makes it anomalous from the USDA Omernik ecoregion in which it is located.
photo_note	Photo Notes		References or links to photos from the site. Examples include: “Available at http://lter.kbs.msu.edu/photos/index.php”

site			
Rowtext	Name	Units	Description
site_note	Site Notes		Various notes on and descriptions of the site other than C flux, climate, photo or vegetation. May include local names for physiographic features, which may or may not appear on USGS Topographic Quadrangles. Examples include: "Biliau Hill", "Warner Valley", "Mudsock"
soiltemp_note	Soil Temperature Notes		Indicate information about additional soil temperature data available about this site. Please include references and links if possible.
add_note	Additional Data Note		Add links or publication references for any additional belowground data available for the site (soil chemistry, microbial measurements).

profile			
Rowtext	Name	Units	Description
site_name	Site Name		A unique name for a site that corresponds to a georeferenced point. For NRCS data, it is the same as the "Site ID". Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
profile_name	Profile Name		A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
observation_date	Observation Date		The date at which the profile was taken at the site. Examples include: “2001-08-20”
date_acc	Observation Date Accuracy	has CV	Estimated accuracy of the observation date. Controlled vocabulary: DATE_QUAL
surface_veg	Surface Vegetation		Describe the dominant vegetation at the exact location of the profile. Examples include: “Forest with canopy dominanted by Pinus spp., Quercus dominant in understory, and ground layer of Pteridium aquilinum and Vaccinium spp.”, “Andropogon-Sorghastrum prairie with invading Juniperus virginiana”
ccon_prof_proc	Processed Profile Organic Carbon Content	g cm-2	Organic carbon content calculation for an individual profile as estimated by the contributor based on special procedures for handling missing data (e.g. %C v. bulk density relations). Most ideal are estimates to a specific depth or horizon in the profile. Please document the method in the associated Processed Profile Organic Carbon Content Error Estimate and Method.
ccon_prof_type	Processed Profile Organic Carbon Content Type	has CV	Type of organic carbon content calculation for individual profile. Controlled vocabulary: CCON_TYPE

profile			
Rowtext	Name	Units	Description
ccon_prof_lcount	Processed Profile Organic Carbon Content Layer Count		Count of individual layers summed to produce the organic carbon content calculation of an individual profile.
ccon_prof_depth	Processed Profile Organic Carbon Content Depth	cm	Profile depth for the processed organic carbon content for an individual profile.
ccon_prof_sigma	Processed Profile Organic Carbon Content Sigma	g cm-2	Organic carbon content calculation for individual profiles error estimate (standard deviation).
ccon_prof_method	Processed Profile Organic Carbon Content Method		Published or other reference to algorithm used to compute Processed Profile Organic Carbon Content.
thaw_depth_profile	Thaw Depth of the Profile	cm	The depth to the frozen surface of the profile. For Alaska sites, this applies only if sampled after August 15 and should be left blank if sampled before.
soil_taxon	Soil Taxonomy		The taxonomic classification of the profile following NRCS convention. Examples include: “Coarse-silty, mixed, active, subgelic Typic Dystrocryepts”, “Sandy, mixed, frigid Entic Haplorthods”
soil_series	Soil Series		The NRCS soil series of the profile. Examples include: "Cowboy", "Rubicon", "Tawas"
add_taxon_flag	Complete Taxonomy Flag	has CV	Indicate that whether there is more taxonomic information for this profile by entering “yes”, otherwise leave the field blank. Controlled vocabulary: YES_BLANK
profile_note	Profile Notes		Enter information that helps describe the profile, such as the NRCS description of the sampled extent of the profile. Examples include: “0i--0 to 2 centimeters; undecomposed forest litter; strongly acid. A--2 to 5 centimeters; black (7.5YR 2.5/1) sand; black (10YR 2/1) dry; weak fine granular structure; very friable; many fine, few medium and coarse roots; about 5 percent fine gravel; strongly acid; abrupt smooth boundary. (0 to 10 centimeters thick)…”
collection_method	Soil Sample Collection Method	has CV	Please document how the soil samples were taken including whether the samples were taken from a core, the face of a pit, or some other method. Examples include: “from core”, “from pit", Enter Other Controlled vocabulary: CORE_PIT

profile			
Rowtext	Name	Units	Description
layer_method	Layer Sampling Method	has CV	Description of how the soils were sampled including whether from a soil core or face pit; sampled by depth or horizon, and quantitative pit or other method. Controlled vocabulary: HORIZON_DEPTH
sampler_names	Sampler Names		The names of the persons who described and sampled the profile. Examples include: “Johnson, Kris”, “Nave, Luke”

layer			
Rowtext	Name	Units	Description
site_name	Site Name		A unique name for a site that corresponds to a georeferenced point. For NRCS data, it is the same as the "Site ID". Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
profile_name	Profile Name		A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
layer_name	Layer Name		A unique name for a single sampled layer. This can be a name that denotes depth, sequence, etc. For NRCS data it is the same as “natural_key”. Examples include: “0-10”, “10-20”, “40A04456”, “BZBS 4.1”
layer_number	Laboratory Layer Number		Laboratory layer sample identifier if different than the Layer Name (data contributor’s own identifier).
layer_top	Layer Top	cm	The top (upper) depth of the layer. The surface of the non-green (i.e. non-living) surface layer is “0”. Note that this is the same as "hzn_top" in the NRCS database. The top of the O-horizon should be 0.
layer_bot	Layer Bottom	cm	The bottom (lower) depth of the layer. If it is uncertain that the bottom of the designated horizon was reached, enter the depth to the bottom of the sampled layer. Note that this is the same as "hzn_bot" in the NRCS database.
hzn_desgn	Horizon Designation		Follow conventions of the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 2-2 through 2-4). Note that datasets originally using another convention will be modified for this column. If a different convention was used it can be entered in Horizon Designation Other. Examples include: “Oi”, “A”, “AE”, “A/E”, “Bwf”, “Bhs”
hzn_bound	Horizon Is Bounded Flag	has CV	Is the bottom sampled depth of the profile bound? Enter “yes” if the last sampled depth in the profile is known to include the extent of the designated horizon, otherwise leave blank. This flag is used to calculate the total carbon content for the bottom Controlled vocabulary: YES_BLANK

layer			
Rowtext	Name	Units	Description
layer_note	Soil Layer Notes		A description of the sampled layer. For example, a full NRCS horizon description. Examples include: “2-5 cm; brown (10YR 4/3) silt loam; moderate very fine platy structure; very friable; many roots; many fine vesicular pores; brown (10YR 5/3) on plate faces; many very thin bands of finer material similar to B't (below) throughout the horizon; abrupt wavy boundary”, “Denser, darker fabrics with white fungus and larger roots”
hzn_desgn_other	Horizon Designation Other		Horizon designation following a convention other than the NRCS convention. Please document the method in the associated Horizon Designation Different Method. Examples include: “L”, “F”, “M”, “H”, “OF”, “OM”, “OH”
hzn_desgn_other_note	Horizon Designation Note		Provide a reference for the horizon designations employed if they differ from NRCS standards in the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002).
color	Moist Munsell Color		Color of moist soil based on the Munsell soil color chart. Examples include: “10YR 3/3”
burn_ev	Evidence of Burning	has CV	Descriptive information indicating evidence of burning within the layer. Examples include: “charcoal”, “burned organic matter”, “ash” Controlled vocabulary: BURN
c_tot	Total Carbon	%	Percent by weight of carbon in an oven-dried soil sample with material >2 mm or 1 cm diameter removed. Calculated by multiplying air-dry determinations of percent carbon by the reciprocal of (1 – fraction moisture in air-dry sample). Please document the method in the associated Carbon Analysis Method. Note that this is the same as "Total Carbon" in the NRCS database.
oc	Organic Carbon	%	Percent by weight of carbon in an oven-dried soil sample with material >2 mm or 1 cm diameter removed and after acidification with HCl, calculated by multiplying air-dry determinations of percent carbon by the reciprocal of (1 – fraction moisture in air-dry sample) OR organic carbon as estimated by Walkley-Black Modified Acid-Dichromate (e.g. ‘Organic Carbon’ in the NRCS database). Please document the method in the associated Carbon Analysis Methods.
c_method	Carbon Analysis Method		Provide reference or describe the sample preparation and analysis methods used for determinations of carbon concentrations, whether Total Carbon, organic C, or Loss on Ignition. Examples include: “Determined total %C from CHN analysis of air dried <2mm fraction”
bd_samp	Sample Bulk Density	g cm-3	Grams of oven-dried soil per cubic centimeter, with soil particles greater than 2 mm and roots greater that 1 cm diameter removed. Calculated by multiplying the air-dry bulk density by (1 – fraction moisture in air-dry sample).

layer			
Rowtext	Name	Units	Description
bd_tot	Total Bulk Density	g cm-3	Grams of oven-dried soil per cubic centimeter, with soil particles greater than 2 mm and roots greater that 1 cm diameter included. Calculated by multiplying the air-dry bulk density by (1 – fraction moisture in air-dry sample).
bd_whole	Whole Soil Bulk Density	g cm-3	Grams of oven-dried soil per cubic centimeter. The difference between this and Total Bulk Density is that the coarse fragment is accounted for. Please document the method in the associated Bulk Density Method.
bd_method	Bulk Density Method		Please reference or describe the methods used to determine bulk densities, whether these correspond to Sample Bulk Density, Total Bulk Density, Whole Soil Bulk Density, or Bulk Density Other. Examples include: “Determined BD_sample from core volume and dry weight of <2mm fraction”, “Strahm et al. 2005 Soil Solution…”
bd_other	Bulk Density Other	g cm-3	Grams of oven-dried soil per cubic centimeter. Please document the method used in the associated Bulk Density Method including the soil particle fraction used.
ph_cacl	Soil pH CaCl2		1:2 soil-CaCl2 is the pH of a sample measured in 0.01M CaCl2 at a 1:2 soil:solution ratio.
ph_h2o	Soil pH 1:1		1:1 distilled water and soil paste. If pH was done by a different method, then enter it into one of the other soil pH fields.
ph_other	Soil pH Other		pH measurements other than 1:1 soil and distilled water paste or in CaCl2. Please document the method in the associated pH Method.
ph_method	pH Method		Provide reference or describe the sample preparation and analysis methods used for determinations of pH if not 1:1 soil and distilled water paste or in CaCl2.
ccon_layer_proc	Processed Layer Organic Carbon Content	g cm-2	Organic carbon content calculation for an individual sample as estimated by the contributor. Please document the method in the associated Processed Layer Organic Carbon Content Error Estimate and Method.
ccon_layer_type	Processed Layer Organic Carbon Content Type	has CV	Type of organic carbon content calculation for individual sample. Controlled vocabulary: CCON_TYPE
ccon_layer_lcount	Processed Layer Organic Carbon Content Layer Count		Number of individual samples analyzed to produce the Processed Layer Organic Carbon Content and Sigma. (Most often used in cases where analytical replicates were made from the same soil sample).
ccon_layer_sigma	Processed Layer Organic Carbon Content Sigma	g cm-2	Organic carbon content calculation for individual sample error estimate (eg. standard deviation of analytical reps).
ccon_layer_method	Processed Layer Organic Carbon Content Method		Published or other reference to algorithm used to compute Processed Layer Organic Carbon Content.
caco3	CaCO3	%	Inorganic carbon concentration as measured or estimated by the contributor. Please document the method in the associated Processed Site Organic Carbon Content Method.

layer			
Rowtext	Name	Units	Description
n_tot	Total Nitrogen	%	Percent by weight of nitrogen (organic and inorganic) in an oven-dried soil sample with material >2 mm or 1 cm diameter removed. Calculated by multiplying air-dry determinations of percent nitrogen by the reciprocal of (1 – fraction moisture in air-dry sample).
13c	13C	‰	Per mille signature of 13C relative to Pee Dee Belemnite.
14c	14C	‰	Per mille signature of 14C relative to NBS Oxalic Acid standard.
15n	15N	‰	Per mille signature of 15N relative to air (international standard).
loi	Loss on Ignition	%	Percent by weight of the organic content of the <2mm fraction is the organic material lost after ignition. It is reported on a <2 mm base. Please document the method in the associated Carbon Analysis Method. Note: this is (100 - min_lt2) for NRCS data.
sand_tot_psa	Percent Sand	%	Percent by weight of soil particles greater than 0.05 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
silt_tot_psa	Percent Silt	%	Percent by weight of soil particles in the size range from 0.002 to 0.050 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
clay_tot_psa	Percent Clay	%	Percent by weight of soil particles less than 0.002 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
wpg2	Coarse Fragments	%	The weight fraction of particles with >2 mm diameter is reported as a gravimetric percent on a whole soil base. Please include metadata in the Coarse Fragments Method column (e.g. estimate or quantitative).
wpg2_method	Coarse Fragments Method		Provide a reference for or describe the methods used to determine coarse fragment content.
root_quant_size	Root Quantity and Size		Use USDA NRCS conventions from the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p.2-56): Record the average quantity from 3 to 5 representative unit areas. Size classes of roots being considered: very fine, < 1mm; fine, 1 – 2mm diameter. Examples include: "few very fine", "Common very fine", "fine"
root_weight	Root Weights	g	Dry weight of roots ≤2 mm in diameter in the sample.

fraction			
Rowtext	Name	Units	Description
site_name	Site Name		A unique name for a site that corresponds to a georeferenced point. For NRCS data, it is the same as the "Site ID". Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”

fraction			
Rowtext	Name	Units	Description
profile_name	Profile Name		A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
layer_name	Layer Name		A unique name for a single sampled layer. This can be a name that denotes depth, sequence, etc. For NRCS data it is the same as “natural_key”. Examples include: “0-10”, “10-20”, “40A04456”, “BZBS 4.1”
fraction_name	Sample Fraction Name		A unique name for a single sample fraction. This can be a name that denotes the nature of the sample fraction. Examples include: “BZBS 4.1 coarse”
fract_number	Laboratory Fraction Number		Laboratory fraction identifier if different than the Fraction Name (data contributor’s own identifier).
fract_note	Fraction Notes		A description of the fraction.
burn_ev_fract	Fraction Evidence of Burning	has CV	Descriptive information indicating evidence of burning within the fraction. Examples include: “charcoal”, “burned organic matter”, “ash” Controlled vocabulary: BURN
c_tot_fract	Fraction Total Carbon	%	Percent by weight of carbon in an oven-dried fraction (the laboratory analytical concentration). Please document the method in the associated Carbon Analysis Method.
oc_fract	Fraction Organic Carbon	%	Carbon concentration of the fraction per unit soil carbon mass. For example, when carbon concentration of the fraction is expressed as grams of fraction carbon per gram of bulk soil carbon.
c_method_fract	Fraction Carbon Analysis Method		Provide reference or describe the sample preparation and analysis methods used for determinations of carbon concentrations, whether Total Carbon, organic C, or Loss on Ignition.
bd_samp_fract	Fraction Sample Bulk Density	g cm-3	Grams of oven-dried soil per cubic centimeter of soil, with soil particles greater than 2 mm and roots greater that 1 cm diameter removed.
bd_whole_fract	Fraction Whole Soil Bulk Density	g cm-3	Grams of oven-dried soil per cubic centimeter of soil. The difference between this and Total Bulk Density is that the coarse fragment is accounted for. Please document the method in the associated Bulk Density Method.
bd_method_fract	Fraction Bulk Density Method		Please reference or describe the methods used to determine bulk densities, whether these correspond to Sample Bulk Density, Total Bulk Density, Whole Soil Bulk Density, or Bulk Density Other. Examples include: “Determined BD_sample from core volume and dry weight of <2mm fraction”, “Strahm et al. 2005 Soil Solution…”
bd_other_fract	Fraction Bulk Density Other	g cm-3	Grams of oven-dried fration per cubic centimeter of soil. Please document the method used in the associated Bulk Density Method including the soil particle fraction used.

fraction			
Rowtext	Name	Units	Description
ccon_fract_proc	Processed Fraction Organic Carbon Content	g cm-2	Organic carbon content calculation for an individual sample fraction as estimated by the contributor. Please document the method in the associated Processed Fraction Organic Carbon Content Error Estimate and Method.
ccon_fract_type	Processed Fraction Organic Carbon Content Type	has CV	Type of organic carbon content calculation for individual fraction. Controlled vocabulary: CCON_TYPE
ccon_fract_sigma	Processed Fraction Organic Carbon Content Sigma		Organic carbon content calculation for individual fraction error estimate.
ccon_fract_method	Processed Fraction Organic Carbon Content Method		Published or other reference to algorithm used to compute Processed Fraction Organic Carbon Content.
n_tot_fract	Fraction Total Nitrogen	%	Percent by weight of nitrogen (organic and inorganic) in an oven-dried soil fraction (the laboratory analytical concentration).
13c_fract	Fraction 13C	‰	Fraction per mille signature of 13C relative to Pee Dee Belemnite.
14c_fract	Fraction 14C	‰	Fraction per mille signature of 14C relative to NBS Oxalic Acid standard.
15n_fract	Fraction 15N	‰	Fraction per mille signature of 15N relative to air (international standard).
loi_fract	Fraction Loss on Ignition	%	Carbon concentration of the fraction per unit soil mass. For example, when carbon concentration of the fraction is expressed as grams of fraction carbon per gram of whole soil mass.
sand_tot_psa_fract	Fraction Percent Sand	%	Percent by weight of soil particles greater than 0.05 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
silt_tot_psa_fract	Fraction Percent Silt	%	Percent by weight of soil particles in the size range from 0.002 to 0.050 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
clay_tot_psa_fract	Fraction Percent Clay	%	Percent by weight of soil particles less than 0.002 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
wpg2_fract	Fraction Coarse Fragments	%	The weight fraction of particles with >2 mm diameter is reported as a gravimetric percent on a whole soil base. Please include metadata (e.g. estimate or quantitative).
wpg2_method_fract	Fraction Coarse Fragments Method		Provide a reference for or describe the methods used to determine coarse fragment content.
fract_scheme	Fractionation Scheme	has CV	The scheme used to isolate the fraction. Examples include: "density", "size_density" Controlled vocabulary: FRACT_SCHEME

fraction			
Rowtext	Name	Units	Description
fract_property	Fraction Property		The value of the chemical or physical property defining the fraction as unique from others in its scheme. Examples include: e.g., for density fractions, “1.85” or “2.65” for fractions of those densities, respectively; for size fractionations, “250-2000” or “<53” for fractions of those particle sizes
fract_scheme_units	Fractionation Scheme Units		The measurement units of the fraction’s chemical or physical property upon which the fractionation scheme acted to separate unique fractions. Examples include: "g cm-3" for density fractions; "µm" for size fractions
fract_type	Fraction Type		The contributor’s name for the specific fraction type. Examples include: "acid-insoluble C", "light fraction", "coarse intra-aggregate particulate organic matter"
fract_agent	Fractionation Agent		The laboratory or analytical device, or chemical compound used to isolate the fraction. Examples include: "sieve", "sonicator", "NMR"; "hydrochloric acid"," sodium polytungstate"

disturbance			
Rowtext	Name	Units	Description
site_name	Site Name		A unique name for a site that corresponds to a georeferenced point. For NRCS data, it is the same as the "Site ID". Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
dist_clearcut_date	Forest clearcutting date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest sites. Please use the associated note to document changes to vegetation.
dist_clearcut_removal_type	Clearcut residue removal type	has CV	Controlled vocabulary: DIST_RESIDUE
dist_clearcut_removal_perc	Clearcut residue percent removed	%	0% indicates no debris removal.
dist_clearcut_date_qual	Forest clearcutting date qualifier	has CV	Qualifier for Forest clearcutting date. Controlled vocabulary: DATE_QUAL
dist_clearcut_date_note	Forest clearcutting date comments		Additional descriptive text on the forest clearcutting disturbance.

disturbance			
Rowtext	Name	Units	Description
dist_crop_residue_date	Crop residue management other than at harvest date	YYYY-MM-DD or MM/DD/YYYY	Applies to crop, grassland, and savannah sites. Please use the associated note to document changes to vegetation.
dist_crop_residue_type	Crop residue removal type	has CV	Controlled vocabulary: DIST_RESIDUE
dist_crop_residue_perc	Crop residue percent remaining on the field	%	100% indicates no debris removal.
dist_crop_residue_date_qual	Crop residue management other than at harvest date qualifier	has CV	Qualifier for Crop residue management other than at harvest date. Controlled vocabulary: DATE_QUAL
dist_crop_residue_date_note	Crop residue management other than at harvest date comments		Additional descriptive text on the crop residue management other than at harvest disturbance.
dist_fire_date	Fire other than wildfire date	YYYY-MM-DD or MM/DD/YYYY	Applies to all site types. Please use the associated note to document changes to vegetation. See also DIST_WILDFIRE_DATE.
dist_fire_severity	Fire severity	has CV	Controlled vocabulary: DIST_FIRE
dist_fire_date_qual	Fire other than wildfire date qualifier	has CV	Qualifier for Fire other than wildfire date. Controlled vocabulary: DATE_QUAL
dist_fire_date_note	Fire other than wildfire date comments		Additional descriptive text on the fire other than wildfire disturbance.
dist_fwd_removal_date	Fallen wood removal other than by underburning date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest sites. Please use the associated note to document changes to vegetation. See also DIST_UNDERBURN.
dist_fwd_removal_perc	Fallen wood removal percent removed	%	0% indicates no debris removal.

disturbance			
Rowtext	Name	Units	Description
dist_fwd_removal_date_qual	Fallen wood removal other than by underburning date qualifier	has CV	Qualifier for Fallen wood removal other than by underburning date. Controlled vocabulary: DATE_QUAL
dist_fwd_removal_date_note	Fallen wood removal other than by underburning date comments		Additional descriptive text on the fallen wood removal other than by underburning disturbance.
dist_general_date	General disturbance date	YYYY-MM-DD or MM/DD/YYYY	Applies to all site types. Used only when one of the other disturbance types does not apply. Please give a detailed description in the notes.
dist_general_date_qual	General disturbance date qualifier	has CV	Qualifier for General disturbance date. Controlled vocabulary: DATE_QUAL
dist_general_date_note	General disturbance date comments		Additional descriptive text on the general disturbance disturbance.
dist_grazed_date	Monthly grazing date	YYYY-MM-DD or MM/DD/YYYY	Applies to crop, grassland and savannah sites. See also dist_ungraze.
dist_grazed_spp	Grazing animal type		Still under definition.
dist_grazed_stocking	Stocking rate of grazing animals		
dist_grazed_live_weight	Estimated live weight of grazing animals		
dist_grazed_onplot	Days per month grazing animals on the plot		
dist_grazed_daynight	Day/night grazing animal management		Still under definition.
dist_grazed_date_qual	Monthly grazing date qualifier	has CV	Qualifier for Monthly grazing date. Controlled vocabulary: DATE_QUAL
dist_grazed_date_note	Monthly grazing date comments		Additional descriptive text on the monthly grazing disturbance.

disturbance			
Rowtext	Name	Units	Description
dist_harvest_date	Crop harvest date	YYYY-MM-DD or MM/DD/YYYY	Applies to crop, grassland, and savannah sites. Please use the associated note to document changes to vegetation.
dist_harvest_residue_type	Harvest residue removal type	has CV	Controlled vocabulary: DIST_RESIDUE
dist_harvest_residue_perc	Harvest residue percent remaining on the field	%	100% indicates no debris removal.
dist_harvest_spp	Harvested species		Harvested species
dist_harvest_date_qual	Crop harvest date qualifier	has CV	Qualifier for Crop harvest date. Controlled vocabulary: DATE_QUAL
dist_harvest_date_note	Crop harvest date comments		Additional descriptive text on the crop harvest disturbance.
dist_herbicide_date	Application of herbicide date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop, grassland, and savannah sites.
dist_herbicide_type	Herbicide type		
dist_herbicide_kgha	Applied herbicide amount	Kg ha-1	
dist_herbicide_date_qual	Application of herbicide date qualifier	has CV	Qualifier for Application of herbicide date. Controlled vocabulary: DATE_QUAL
dist_herbicide_date_note	Application of herbicide date comments		Additional descriptive text on the application of herbicide disturbance.
dist_insect_and_pathogen_date	Insects and pathogens date	YYYY-MM-DD or MM/DD/YYYY	Applies to all site types. Used to indicate cause of a change in vegetative cover. Please use the comment to identify the insects and/or pathogens.
dist_insect_and_pathogen_date_qual	Insects and pathogens date qualifier	has CV	Qualifier for Insects and pathogens date. Controlled vocabulary: DATE_QUAL
dist_insect_and_pathogen_date_note	Insects and pathogens date comments		Additional descriptive text on the insects and pathogens disturbance.

disturbance			
Rowtext	Name	Units	Description
dist_irrigation_date	Irrigation date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop and grassland sites.
dist_irrigation_water	Amount of irrigation water applied during irrigation	mm	Equivalent precipitation inputs via irrigation.
dist_irrigation_drain_depth	Irrigation drainage depth	m	
dist_irrigation_date_qual	Irrigation date qualifier	has CV	Qualifier for Irrigation date. Controlled vocabulary: DATE_QUAL
dist_irrigation_date_note	Irrigation date comments		Additional descriptive text on the irrigation disturbance.
dist_liming_date	Application of lime date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop and grassland sites.
dist_liming_kgha	Applied lime amount	Kg ha-1	
dist_liming_date_qual	Application of lime date qualifier	has CV	Qualifier for Application of lime date. Controlled vocabulary: DATE_QUAL
dist_liming_date_note	Application of lime date comments		Additional descriptive text on the application of lime disturbance.
dist_m_fertilization_date	Mineral fertilization date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop and grassland sites.
dist_m_fertilization_type	Type of mineral fertilizer	has CV	Controlled vocabulary: DIST_M_FERT_TYPE
dist_m_fertilization_kgha	Amount of mineral fertilizer applied	Kg ha-1	
dist_m_fertilization_form	Chemical form of mineral N, P and K applied	has CV	Controlled vocabulary: DIST_M_FERT_FORM
dist_m_fertilization_method	Application methods for mineral fertilizer	has CV	Controlled vocabulary: DIST_M_FERT_APP

disturbance			
Rowtext	Name	Units	Description
dist_m_fertilization_date_qual	Mineral fertilization date qualifier	has CV	Qualifier for Mineral fertilization date. Controlled vocabulary: DATE_QUAL
dist_m_fertilization_date_note	Mineral fertilization date comments		Additional descriptive text on the mineral fertilization disturbance.
dist_natural_regeneration_date	Natural regeneration date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest and savannah sites.
dist_natural_regeneration_type	Regeneration by planting or natural vegetation	has CV	Indicates whether the regeneration was filled by planted trees or other vegetation. Controlled vocabulary: DIST_REGEN
dist_natural_regeneration_date_qual	Natural regeneration date qualifier	has CV	Qualifier for Natural regeneration date. Controlled vocabulary: DATE_QUAL
dist_natural_regeneration_date_note	Natural regeneration date comments		Additional descriptive text on the natural regeneration disturbance.
dist_o_fertilization_date	Organic fertilization date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop and grassland sites.
dist_o_fertilization_type	Organic fertilizer type		Still under definition.
dist_o_fertilization_kgha	Applied organic fertilizer amount	Kg ha-1	
dist_o_fertilization_c	Estimated total C content of the organic fertilizer	%	
dist_o_fertilization_n	Estimated total N content of the organic fertilizer	%	
dist_o_fertilization_method	Application methods for organic fertilizer		Still under definition
dist_o_fertilization_date_qual	Organic fertilization date qualifier	has CV	Qualifier for Organic fertilization date. Controlled vocabulary: DATE_QUAL
dist_o_fertilization_date_note	Organic fertilization date comments		Additional descriptive text on the organic fertilization disturbance.

disturbance			
Rowtext	Name	Units	Description
dist_pesticide_date	Application of pesticide or insecticide date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop, grassland, or savannah sites.
dist_pesticide_kgha	Applied pesticide amount	Kg ha-1	
dist_pesticide_type	Pesticide type		Still under definition.
dist_pesticide_date_qual	Application of pesticide or insecticide date qualifier	has CV	Qualifier for Application of pesticide or insecticide date. Controlled vocabulary: DATE_QUAL
dist_pesticide_date_note	Application of pesticide or insecticide date comments		Additional descriptive text on the application of pesticide or insecticide disturbance.
dist_planting_date	Sowing or planting date	YYYY-MM-DD or MM/DD/YYYY	Applies primarily to crop, grassland, or savannah sites.
dist_planting_seed	Seeds per hectare planted or sowed	N ha-1	
dist_planting_spp	Planted species		
dist_planting_date_qual	Sowing or planting date qualifier	has CV	Qualifier for Sowing or planting date. Controlled vocabulary: DATE_QUAL
dist_planting_date_note	Sowing or planting date comments		Additional descriptive text on the sowing or planting disturbance, such as spacing between seeds at time of planting.
dist_storm_date	Severe storm date	YYYY-MM-DD or MM/DD/YYYY	Applies to all site types. Indicates the occurance of a severe storm such as a hurricane.
dist_storm_date_qual	Severe storm date qualifier	has CV	Qualifier for Severe storm date. Controlled vocabulary: DATE_QUAL
dist_storm_date_note	Severe storm date comments		Additional descriptive text on the severe storm disturbance.
dist_thinning_date	Thinning other than clear cutting date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest sites that have had partial harvests (as opposed to clearcut harvests). Please use the associated note to document changes to vegetation.

disturbance			
Rowtext	Name	Units	Description
dist_thinning_removal_type	Thinning residue removal type	has CV	Controlled vocabulary: DIST_RESIDUE
dist_thinning_perc	Thinning percent of thinning	%	Still under definition.
dist_thinning_basal_area	Percent of basal area after thinning		Still under definition.
dist_thinning_date_qual	Thinning other than clear cutting date qualifier	has CV	Qualifier for Thinning other than clear cutting date. Controlled vocabulary: DATE_QUAL
dist_thinning_date_note	Thinning other than clear cutting date comments		Additional descriptive text on the thinning other than clear cutting disturbance, such as whether it was shelterwood, single-tree or group tree selection harvest.
dist_tillage_date	Tillage or site preparation date	YYYY-MM-DD or MM/DD/YYYY	Includes scarification and plowing. Applies to crop, grassland, or savannah sites.
dist_tillage_type	Tillage type	has CV	Controlled vocabulary: DIST_TILLAGE
dist_tillage_depth	Tillage depth	m	
dist_tillage_date_qual	Tillage or site preparation date qualifier	has CV	Qualifier for Tillage or site preparation date. Controlled vocabulary: DATE_QUAL
dist_tillage_date_note	Tillage or site preparation date comments		Additional descriptive text on the tillage or site preparation disturbance.
dist_ungrazed_date	Site was not grazed date	YYYY-MM-DD or MM/DD/YYYY	Applies to crop, grassland, and savannah sites. See also dist_graze.
dist_ungrazed_duration	Number of months after the disturbance date that no grazing occurred		
dist_ungrazed_date_qual	Site was not grazed date qualifier	has CV	Qualifier for Site was not grazed date. Controlled vocabulary: DATE_QUAL
dist_ungrazed_date_note	Site was not grazed date comments		Additional descriptive text on the site was not grazed disturbance.

disturbance			
Rowtext	Name	Units	Description
dist_wildfire_date	Wildfire date	YYYY-MM-DD or MM/DD/YYYY	Applies to all site types. Please use the associated note to document changes to vegetation. See also dist_fire_date.
dist_wildfire_severity	Fire severity	has CV	Controlled vocabulary: DIST_FIRE
dist_wildfire_date_qual	Wildfire date qualifier	has CV	Qualifier for Wildfire date. Controlled vocabulary: DATE_QUAL
dist_wildfire_date_note	Wildfire date comments		Additional descriptive text on the wildfire disturbance.
dist_underburn_date	Fallen wood removal by underburning date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest sites. Please use the associated note to document changes to vegetation. See also dist_fwd_removal_date.
dist_underburn_perc	Underburnning percent removed	%	
dist_underburn_date_qual	Fallen wood removal by underburning date qualifier	has CV	Qualifier for Fallen wood removal by underburning date. Controlled vocabulary: DATE_QUAL
dist_underburn_date_note	Fallen wood removal by underburning date comments		Additional descriptive text on the fallen wood removal by underburning disturbance.
dist_windthrow_date	Wind throw date	YYYY-MM-DD or MM/DD/YYYY	Applies to forest or savannah sites.
dist_windthrow_perc	Wind throw percent removed	%	Applies to all site types.
dist_windthrow_date_qual	Wind throw date qualifier	has CV	Qualifier for Wind throw date. Controlled vocabulary: DATE_QUAL
dist_windthrow_date_note	Wind throw date comments		Additional descriptive text on the wind throw disturbance.
dist_woody_encroachment_date	Woody encroachment date	YYYY-MM-DD or MM/DD/YYYY	Applies to grassland, cropland, or savannah sites.

disturbance			
Rowtext	Name	Units	Description
dist_woody_encroachment_date_qual	Woody encroachment date qualifier	has CV	Qualifier for Woody encroachment date. Controlled vocabulary: DATE_QUAL
dist_woody_encroachment_date_note	Woody encroachment date comments		Additional descriptive text on the woody encroachment disturbance.

metadata			
Rowtext	Name	Units	Description
curator_name	Curator Name		Name of the person responsible for the dataset as a whole (not necessarily the person who collected the data).
curator_organization	Curator Organization		Data set curator organization.
curator_email	Curator Email		Email of the person responsible for the dataset as a whole.
modification_date	Template Modification Date		
contact_name	Additional Contact Name		Additional contact names responsible for the dataset as a whole (not necessarily the person who collected the data).
contact_email	Additional Contact Email		Additional contact emails for the dataset as a whole.
dataset_description	Dataset Description		Descriptive information on the dataset.
reference	Reference		
citation	Citation text		Reference (RIS or BibTex) to be used when publishing papers using data from this site. See also Acknowledgement.
citation_usage	Citation usage		Descriptive text on the usage such as the relevant sites or variables for this citation.
acknowledgement	Acknowlegement text		Text to be included in the acknowledgements when publishing papers using data from this site. See also Citation.
acknowledgement_usage	Acknowlegement usage		Descriptive text on the usage such as the relevant sites or variables for this acknowledgement.
c_est_method	Carbon Estimation Method		General description about methods used to estimate missing data when estimating carbon concentrations, e.g. “estimated bulk densities assumed the value of a measured bulk density within the same soil horizon”.
c_est_note	Carbon Estimation Note		Additional notes including published or other references on the procedures used t oestimate missing data when estimating carbon concentrations.
lab_method	Lab Analysis Method		Please describe any modifications to the conventional laboratory analysis.
metadata_general	General Metadata		Include any general metadata that is important for the dataset that does not fall within the other metadata and method descriptions.
missdata_param	Parameters for Missing Data Equations		Please include equations used for the estimation of values from other measured values in the database, e.g. Total Bulk Density=1.2121*exp(-0.0803*%Carbon) and relevant references.
resample	Resample Metadata		Indicates whether the site was resampled.